CIRCLE (Q 1, PAPER 2)

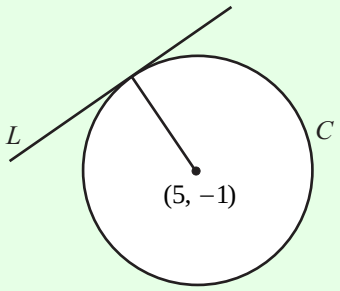
LESSON NO. 3: TANGENT AND CIRCLE

2006

1 (b) Circle C has centre $(5, -1)$. The line L: $3x - 4y + 11 = 0$ is a tangent to C.

(i) Show that the radius of C is 6.

(ii) The line $x + py + 1 = 0$ is also a tangent to C. Find two possible values of p.



2005

1 (b) (i) Prove that the equation of the tangent to the circle $x^2 + y^2 = r^2$ at the point (x_1, y_1) is $xx_1 + yy_1 = r^2$.

(ii) Hence, or otherwise, find the two values of b such that the line $5x + by = 169$ is a tangent to the circle $x^2 + y^2 = 169$.

2003

1 (c) The line $ax + by = 0$ is a tangent to the circle $x^2 + y^2 - 12x + 6y + 9 = 0$ where $a, b \in \mathbf{R}$ and $b \neq 0$.

(i) Show that $\frac{a}{b} = -\frac{3}{4}$.

(ii) Hence, or otherwise, find the co-ordinates of the point of contact.

ANSWERS

2006 1 (b) (ii) $p = 0, -\frac{12}{35}$

2005 1 (b) (i) $b = \pm 12$

2003 1 (c) (ii) $(\frac{12}{5}, \frac{9}{5})$